

**MARYLAND HISTORICAL TRUST
NR-ELIBILITY REVIEW FORM**

Continuation Sheet No. 1

AL-VI-E-222

built bridges in a variety of styles and sizes. Examples of their designs are not uncommon. The Keyser-McCoole Bridge is not a significant example of the firm's work, which includes the Delaware Memorial Bridge and the Paseo Bridge in Kansas City.

To be eligible under Criterion C, a bridge must meet one of the following categories: it is significant in the history of bridge engineering, design, or construction; it was designed or built by a renowned person or entity; it is a significant example of engineering solutions developed in response to conditions characteristic of the region; it reflects traditional construction techniques or innovative technological solutions; it is a representative example of a specific bridge type; it is a rare bridge type; it possesses architectural or artistic distinction. Once more, the Keyser-McCoole Bridge does not meet any subcategory. The bridge is not significant in terms of its engineering design or construction, it was not built in response to conditions characteristic of the region, it does not reflect traditional forms or construction techniques, it is not rare, nor does it possess architectural or artistic distinction. It is an example of a commonplace, long-span design. According to the Maryland State Highway Administration, more than 800 steel, continuous, multi-girder bridges can be found throughout the state. The design has been used nationwide since at least the late 1920s. As noted above, the design firm was prolific, but the bridge is not a significant example of its work.

Prepared by: Gerald M. Kuncio

Date Prepared: June 2000

Keyser-McCoole Bridge
AL-VI-E-222
U.S. Route 220 over the North Branch
of the Potomac River
1949-1951
Access: Public

The Keyser-McCoole Bridge is a 26-span, 667.5 m (2,190.0 ft) long structure that spans the North Branch of the Potomac River, two railroad rights-of-way, and a portion of Keyser, West Virginia and McCoole, Maryland. The main span crossing the river is a four-span, steel, continuous deck girder bridge with an overall length of 170.4 m (559.0 ft). The 18 approach spans on the West Virginia side consist of 13 continuous and five cantilevered multi-beam bridges. The five Maryland approach spans consist of one simple and four continuous multi-beam spans. The bridge was designed by the Maryland State Roads Commission and Howard, Needles, Tammen, & Bergendoff under contract to the West Virginia State Roads Commission. It was constructed between 1949 and 1951.

The Keyser-McCoole Bridge is not significant under National Register of Historic Places (NRHP) Criteria A, B, or C. The bridge is not a significant example of a grade crossing elimination structure, nor does it convey the shift from intrastate to interstate highway systems. It is not a significant example of the work of the design firm, or a technologically significant example of its design. Continuous plate girder bridges has been constructed in great numbers since the late 1920s.

7. Description

Inventory No. AL-VI-E-222

Condition

<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated
<input type="checkbox"/> good	<input type="checkbox"/> ruins
<input checked="" type="checkbox"/> fair	<input type="checkbox"/> altered

Prepare both a one paragraph summary and a comprehensive description of the resource and its various elements as it exists today.

The Keyser-McCoole Bridge, a high-level structure, spans an area including the North Branch of the Potomac River between Keyser, Mineral County, West Virginia and McCoole, Allegany County, Maryland. The 26-span, 667.5 m (2,190.0 ft) long structure carries two lanes of U.S. Route 220 and two sidewalks over the North Branch of the Potomac River, two railroad rights-of-way, and streets on each side of the river. The main span over the river consists of four steel, continuous deck girder spans; the approaches are a mixture of continuous multi-beam bridges, cantilever multi-beam bridges, and one simply supported span. The substructure includes a variety of reinforced concrete shapes. The railings consist of metal pickets and concrete posts.

The Keyser-McCoole Bridge begins in Keyser at the intersection of Mineral and Center streets, on the west edge of the downtown commercial district. It rises steeply to provide clearance over the CSX Transportation railroad tracks. Approximately 121.9 m (400.0 ft) from the south end the bridge passes less than 3.0 m (10.0 ft) from the former Baltimore & Ohio Railroad Keyser Station, located off the west side of the bridge. Shortly after the station the bridge levels off. It continues on a high level over the Potomac Addition to Keyser, a residential area platted in the 1910s. As it crosses over Maple Street, it begins a curve to the left. The bridge continues on a tangent, crossing over the North Branch of the Potomac and an island in the river. The bridge descends at a shallow grade, crossing over the former Western Maryland Railway right-of-way and Queens Point Road in McCoole before terminating on the north at an intersection with Chesapeake Avenue.

The river (main) span of the bridge consists of a steel, four span, continuous, built up deck girder bridge with an overall length of 170.4 m (559.0 ft). The variable depth beams are deeper at the piers to provide support where it is most needed. The 18 approach spans on the West Virginia side of the river are a mixture of 13 continuous, steel multi-beam bridges and five continuous, steel multi-beam bridges with cantilevered sections. They vary in individual length from 18.3 m (60.0 ft) to approximately 25.9 m (85.0 ft). Their total length is 424.9 m (1,394.0 ft). The five approach spans on the Maryland side are also of steel construction, and consist of a 9.1 m (30.0 ft) long, simple span bridge, and three continuous spans, two at approximately 18.9 m (62.0 ft) and one at approximately 27.7 m (81.0 ft), for an overall length of 71.9 m (236.0 ft).

All substructure elements are made of reinforced concrete. The river spans are supported by two full-height solid piers and two four-column bents with solid caps. The end piers are finished with Art Moderne style vertical extensions, the only attempt to add an aesthetic element to an otherwise utilitarian design. Other substructure elements on the West Virginia side include two- and three-column bents with solid caps, two full-height hammerhead piers, and a cellular abutment. On the Maryland side, the approaches are supported by two- and three-column bents with solid caps and a spill-thru abutment.

The reinforced concrete deck is cantilevered over the superstructure. The two travel lanes have a curb-to-curb width of 8.5 m (28.0 ft). They are framed by 1.2 m (4.0 ft) wide sidewalks finished with metal, picket style railings interspersed with concrete posts. The railing is broken at two places on the east side: one is in Keyser, to allow a steep set of stairs to connect Maple Street with the bridge; the second is in McCoole, where a short set of stairs connects the bridge with Queens Point Road.

8. Significance

Inventory No. AL-VI-E-222

Period	Areas of Significance	Check and justify below		
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> health/medicine	<input type="checkbox"/> performing arts
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> archeology	<input type="checkbox"/> education	<input type="checkbox"/> industry	<input type="checkbox"/> philosophy
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> architecture	<input type="checkbox"/> engineering	<input type="checkbox"/> invention	<input type="checkbox"/> politics/government
<input checked="" type="checkbox"/> 1900-1999	<input type="checkbox"/> art	<input type="checkbox"/> entertainment/	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 2000-	<input type="checkbox"/> commerce	<input type="checkbox"/> recreation	<input type="checkbox"/> law	<input type="checkbox"/> science
	<input type="checkbox"/> communications	<input type="checkbox"/> ethnic heritage	<input type="checkbox"/> literature	<input type="checkbox"/> social history
	<input type="checkbox"/> community planning	<input type="checkbox"/> exploration/	<input type="checkbox"/> maritime history	<input checked="" type="checkbox"/> transportation
	<input type="checkbox"/> conservation	<input type="checkbox"/> settlement	<input type="checkbox"/> military	<input type="checkbox"/> other: _____

Specific dates	1949, 1950	Architect/Builder	J. Fracesa & Companuy, Builder
Construction dates	1949-1951		

Evaluation for:

☐ National Register ☐ Maryland Register ☐ not evaluated

Prepare a one-paragraph summary statement of significance addressing applicable criteria, followed by a narrative discussion of the history of the resource and its context. (For compliance projects, complete evaluation on a DOE Form – see manual.)

The Keyser-McCoole Bridge was erected between 1949 and 1951. A bridge plaque lists the contractor as J. Fracesa & Company of Fayetteville, West Virginia. A second plaque identifies the bridge as the "Memorial Bridge - Dedicated to Veterans of All Wars." A 1958 history of road building in Maryland briefly mentions the Keyser-McCoole Bridge in the chapter on modern bridges, noting that "among the larger projects" in the years following World War II were four crossing of the Potomac River, including the Keyser-McCoole Bridge. The report further notes that the high-level structure spans the North Branch of the Potomac River as well as railroad tracks and several streets on each side of the stream, implying that elimination of grade crossings and the need for through local traffic to traverse the towns unimpeded were at least part of the motivation behind the bridge's construction (State Roads Commission 1958:137).

The bridge was designed jointly by Howard, Needles, Tammen & Bergendoff, under contract to the State Roads Commission of West Virginia, and the State Roads Commission of Maryland (West Virginia Division of Highways Bridge File). Howard, Needles, Tammen & Bergendoff was a large and prolific New York bridge design firm in the middle years of the twentieth century. The firm was responsible for such notable structures as the Delaware Memorial Bridge, a suspension bridge that spans the Delaware River between New Jersey and Delaware, and the Paseo Bridge in Kansas City, the nation's longest self-anchored suspension bridge (Condit 1961:133, 345-346). The firm continues in operation.

The design chosen for the main span across the North Branch was a steel, 4-span, continuous deck girder bridge. Plate girder bridges consist of parallel beams created by riveting together metal plates to form the webs and either angles or plates to form the flanges. The first recorded use of a metal plate girder bridge in the United States occurred in 1847 at the Baltimore and Susquehanna Railroad's Bolton Station in Baltimore (P.A.C. Spero and Company 1995:24). Railroads made extensive use of the bridge design throughout the nineteenth and twentieth centuries. It was strong, fireproof, and easily transported to the building site in sections on railroad flat cars. Additional strength could be added by deepening the webs or adding plates to the flanges (P.A.C. Spero and Company 1995:115). The technology transferred to highway bridge construction during the second half of the nineteenth century. Girder bridges were extremely popular. Noted bridge engineer and author J.A.L. Waddell wrote that while "plate girder bridges are as unscientific structures as a bridge specialist ever has designed, they are without a doubt the most satisfactory type of construction possible for short spans" (Waddell 1925:408). They continue to be built today.

The approach spans of the Keyser-McCoole Bridge are continuous multi-beam bridges, also called steel stringer bridges. A steel stringer bridge consists of rolled, rather than built up, webs and flanges. The widespread use of rolled beams dates to the late nineteenth century. It coincided with technological changes of the era, including a growing preference for steel rather than iron as a structural element and improvements in metallurgy and rolling equipment, which made the production of rolled members with deep webs possible. Steel stringer bridges were extremely popular highway bridges, and are built today (A.G. Lichtenstein and Associates 1994:55).

A continuous span, like the spans used on the Keyser-McCoole Bridge, is one where the superstructure extends without a break over an intermediate substructure element. Its opposite is a simple span, where the span terminates at each substructure element. Continuous bridges were built as early as the late nineteenth century, but they were not

9. Major Bibliographical References

Inventory No. AL-VI-E-222

See Continuation Sheet.

10. Geographical Data

Acreage of surveyed property approximately 294
Acreage of historical setting approximately 1
Quadrangle name Keyser, W.VA.-MD.

Quadrangle scale: 1:125,000

Verbal boundary description and justification

The West Virginia Division of Highways is considering either rehabilitating the Keyser-McCoole Bridge or constructing a new bridge immediately upstream or downstream from the present bridge. The Area of Surveyed Property is equivalent to the Area of Potential Effect (APE) for the project. The APE is defined at 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." The APE for the Keyser-McCoole Bridge Construction project is an roughly quadrilateral area containing approximately 119.4 ha (295 ac). On the Maryland side, it runs from the west side of Maryland Route 135 to the easternmost house in the lower portion of McCoole, and from the north bank of the Potomac River on the south to the end of the lower portion of McCoole on the north. It is considered to be the maximum spatial extent of potential visual effects that the project may have on historic resources. The upper portion of McCoole is specifically excluded from the APE because topographic changes limit the visibility of the project.

The boundary for the Keyser-McCoole Bridge includes the footprint of the bridge. The boundary contains the bridge superstructure and substructure, the entire resource.

11. Form Prepared by

name/title	Gerald M. Kuncio		
organization	Skelly and Loy, Inc.	date	June 2000
street & number	520 Seco Road	telephone	(412) 856-1676
city or town	Monroeville	state	PA

The Maryland Inventory of Historic Properties was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
DHCD/DHCP
100 Community Place
Crownsville, MD 21032-2023
410-514-7600

Maryland Historical Trust

Maryland Inventory of Historic Properties Form

Inventory No. AL-VI-E-222

Name Keyser-McCoole Bridge
Continuation Sheet

Number 8 Page 1

widely used on a national basis until the late 1920s, when the means to calculate stresses at all points of a bridge improved. In long span continuous girder bridges, like this one, the webs are often deeper over the piers, where the bending stresses are the highest. Continuous span bridges were built in great numbers following the end of World War II. Their chief advantages were the ability to span greater distances and the cost savings associated with the need for fewer substructure elements (A.G. Lichtenstein and Associates 1995:6).

The Keyser-McCoole Bridge relocated U.S. Route 220 between Keyser, Mineral County, West Virginia and McCoole, Allegany County, Maryland. In Maryland, U.S. Route 220 runs between McCoole on the south, through Cumberland, and into Pennsylvania. There has been a road between Cumberland and what is now Keyser since at least the 1840s (E. Weber and Company ca. 1840). The road, like most roads in the Appalachian region of Maryland, followed the valley and stream, in this case Mill Creek, between parallel mountain ranges (P.A.C. Spero and Company 1995:5). However, as maps from the nineteenth century illustrate, the main road did not run directly to what was then New Creek. Rather, just north of what is now McCoole, the main road turned west and followed the North Branch of the Potomac to Westernport, the south end of Maryland's Georges Creek coalfields. A branch of the road followed the Potomac to a point opposite New Creek. No bridge connected the two states; the river had to be forded (E. Weber and Company ca. 1840; Martenet 1872).

In 1888, the village of McCoole was platted across the river from Keyser. The village attracted predominantly railroad workers, but also a smattering of businessmen and professional workers from Keyser. Initially, the only bridge between the two towns was a railroad bridge belonging to the West Virginia Central & Pittsburg (later the Western Maryland) Railway, which followed the north bank of the river but had a small spur into Keyser. McCoole residents repeatedly petitioned for a highway bridge, only to be rebuffed by Keyser business interests, who feared it would have a detrimental impact on their town. In 1909, McCoole residents paid for a bridge without assistance from Keyser, then purchased a piece of property on the Keyser side for the second abutment. That bridge, a two-span, Pratt through truss, connected Davis Street (now Parkland Street) in McCoole with Main Street in Keyser. The original bridge was removed the year following construction of the high-level bridge (Steiding 1966:7-8, 11; Mineral County Heritage Society 1991:22; Taylor Interview 2000).

The construction of the Keyser-McCoole Bridge reflected a change in emphasis in highway construction in the years immediately following World War II, an emphasis illustrated in Allegany County maps from the early 1950s. The highway between Cumberland and McCoole, now U.S. Route 220, still predominantly followed Mill Creek down the valley. However, the main road no longer turned west toward Westernport. It now continued south through central West Virginia (State Roads Commission 1953; Maryland Department of Geology, Mines, and Water Resources 1953). The change reflected a number of realities. First, a post-war federal highway planning and funding program that emphasized interstate, rather than intrastate, highway travel, and that sought to produce a national network of interstate roadways (Seely 1987:192-225). Second, it reflected the decline of mining in the Georges Creek coal region (Ware 1991). The coal fields and declining industrial areas of western Maryland were no longer the primary destination of people and goods. Third, it reflected the ascendancy of highways and the concomitant decline of the railroad industry for long-distance passenger and freight hauling. At the time the Keyser-McCoole Bridge was constructed, both the Baltimore & Ohio Railroad and the Western Maryland Railway were eliminating services in the area (Stegmaier, Jr. 1976: 419-420).

Construction of the bridge also reflected a trend toward eliminating railroad grade crossings wherever possible. The movement had begun in the early twentieth century. Advances in locomotive technology and railroad car design allowed trains to be both heavier and faster. At the same time, the number of automotive vehicles on the nation's roads was exploding. Many, if not most, crossings in the early twentieth century were at grade and unguarded. The result was a frightful accident total, with loss of life and serious injuries commonplace. In response, a concerted effort was begun to eliminate at-grade crossings either by reengineering existing railroad lines or by constructing highway bridges over the railroad rights-of-way. The effort often began following prodding by the state regulatory agency, and was

Maryland Historical Trust

Maryland Inventory of Historic Properties Form

Inventory No. AL-VI-E-222

Name Keyser-McCoole Bridge
Continuation Sheet

Number 8 Page 2

sometimes delayed by disputes over how funding would be allocated among the various parties. Grade crossing eliminations were a feature of bridge building throughout the twentieth century, but the peak years were between the 1910s and the 1930s. A portion of the New Deal relief programs sponsored by the Works Progress and Public Works Administrations involved eliminating railroad grades (Seely 1987:88-99).

Maryland Historical Trust

Maryland Inventory of Historic Properties Form

Inventory No. AL-VI-E-222

Name Keyser-McCoole Bridge
Continuation Sheet

Number 9 Page 1

A.G. Lichtenstein and Associates

1994 "New Jersey Historic Bridge Survey." On file, New Jersey Department of Transportation, Trenton.

1995 "Georgia Department of Transportation Historic Bridge Inventory Update: Bridge Technology in Georgia." On file, Georgia Department of Transportation, Atlanta.

Condit, C.W.

1961 *American Building Art: The Twentieth Century*. Oxford University Press, New York.

E. Weber and Company

n.d. ca. 1840 Map Shewing the Connection of the Coal-Field of Allegany with the Canal and Rail-Road Improvements of the Potomac. E. Weber and Company, Baltimore.

Interview with Edwin N. Taylor, Keyser City Administrator, August 2000.

Martenet, S.J.

1872 Topographical Atlas of Maryland—Counties of Alleghany and Garrett. Simon J. Martenet, Baltimore.

Maryland Department of Geology, Mines, and Water Resources

1953 Map of Allegany County Showing Topography and the Election Districts. Maryland Department of Geology, Mines, and Water Resources, Annapolis.

Mineral County Heritage Society

1991 *Keyser, West Virginia 1811-1991: Pictorial History*. Mineral County Heritage Society, Keyser, West Virginia.

P.A.C. Spero and Company and Louis Berger & Associates

1995 "Historic Highway Bridges in Maryland: 1631-1960: Historic Context Report." P.A.C. Spero & Company, Baltimore.

Seely, Bruce E.

1987 *Building the American Highway System: Engineers as Policy Makers*. Temple University Press, Philadelphia.

State Roads Commission of Maryland

1953 General Highway Map, Allegany County. State Roads Commission of Maryland, Baltimore.

1958 *Report of the State Roads Commission of Maryland: A History of Road Building in Maryland*. State Roads Commission of Maryland, Baltimore.

Steiding, C.E.

1966 "History of McCoole, Allegany County, Maryland." Unpublished manuscript in the collection of Pam Williams, McCoole, Maryland.

Waddell, J.A.L.

1925 *Bridge Engineering*. John Wiley & Sons, Inc., New York.

Maryland Historical Trust Maryland Inventory of Historic Properties Form

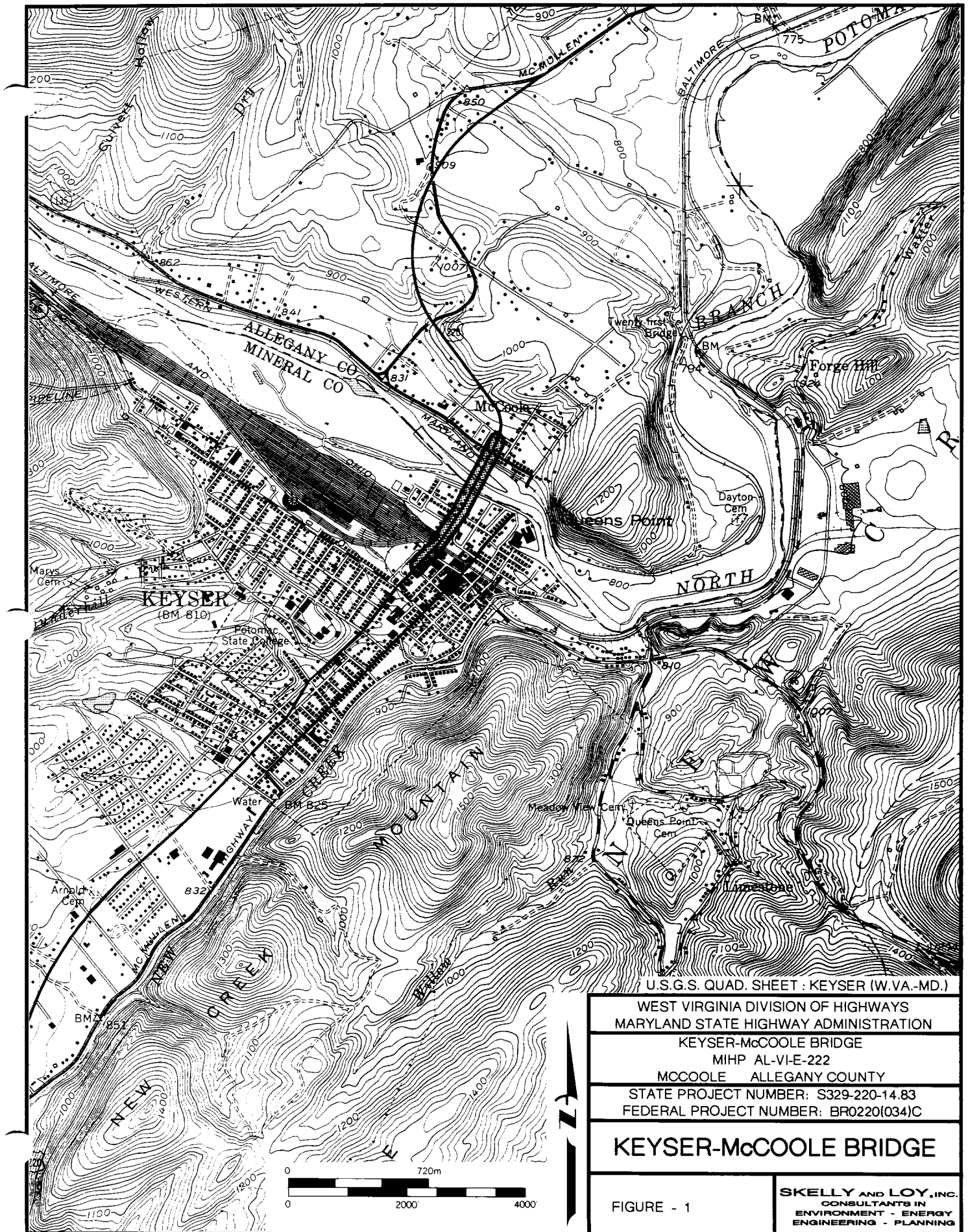
Inventory No. AL-VI-E-222

Name Keyser-McCoole Bridge
Continuation Sheet

Number 9 Page 2

Ware, Donna M.

1991 *Green Glades and Sooty Gob Piles: The Maryland Coal Region's Industrial and Architectural Past.* Maryland Historical Trust, Crownsville.



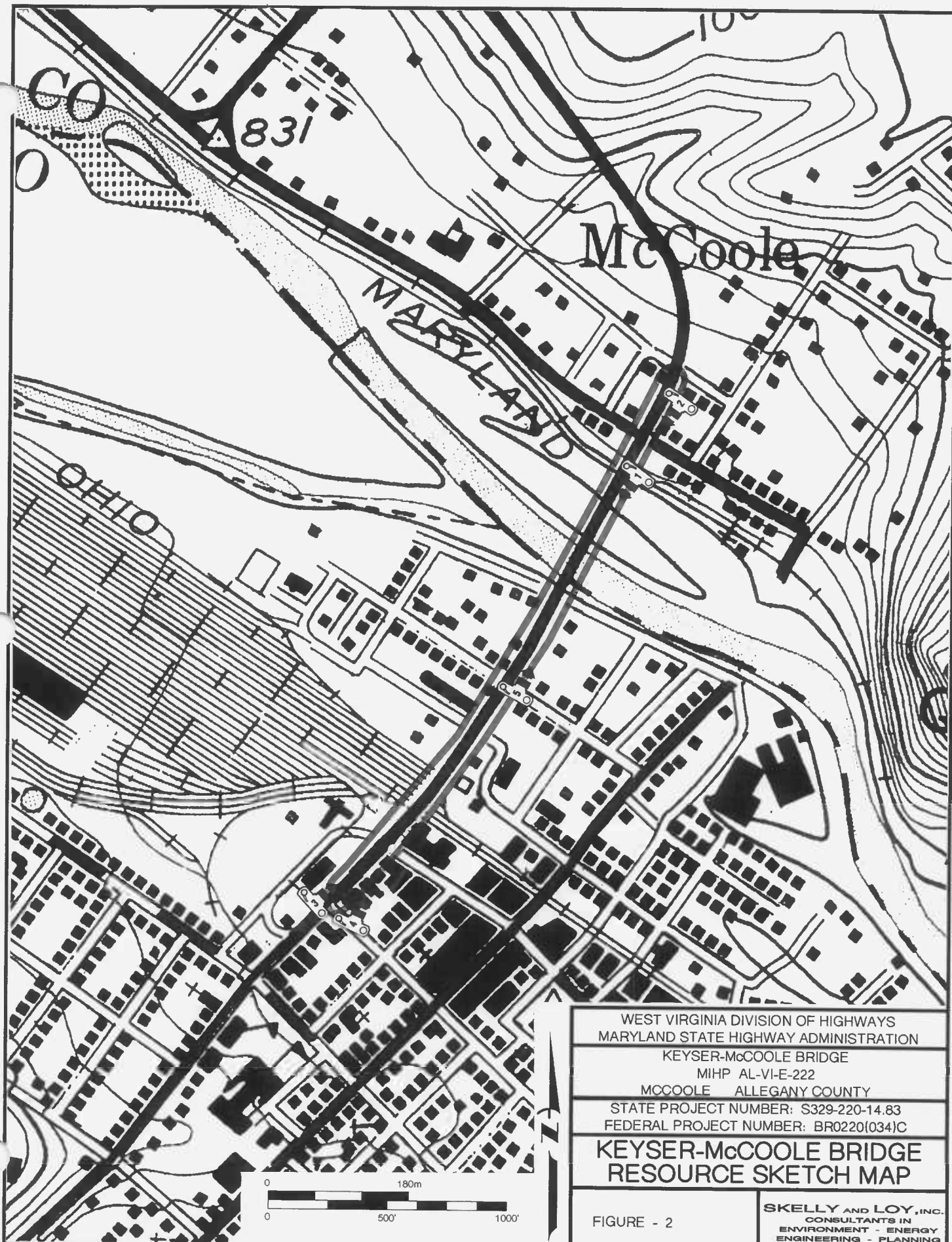
U.S.G.S. QUAD. SHEET : KEYSER (W.VA.-MD.)

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
KEYSER-McCOOLE BRIDGE
MIHP AL-VI-E-222
MCCOOLE ALLEGANY COUNTY
STATE PROJECT NUMBER: S329-220-14.83
FEDERAL PROJECT NUMBER: BR0220(034)C

KEYSER-McCOOLE BRIDGE

FIGURE - 1

SKELLY AND LOY, INC.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
KEYSER-McCOOLE BRIDGE
MIHP AL-VI-E-222
MCCOOLE ALLEGANY COUNTY
STATE PROJECT NUMBER: S329-220-14.83
FEDERAL PROJECT NUMBER: BR0220(034)C

**KEYSER-McCOOLE BRIDGE
RESOURCE SKETCH MAP**

FIGURE - 2

SKELLY AND LOY, INC.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING



MIHP NO. AL-VI-E-222

KEYSER-MCCOOLE BRIDGE

ALLEGANY COUNTY, MARYLAND & MINERAL COUNTY, WEST VIRGINIA

PHOTOGRAPHER: GERALD M. KUNCIO, SKELL & LOY, INC.

DATE: AUGUST 2000

NEGATIVE LOCATION: MD SHPO

DESCRIPTION: MAIN SPAN OF THE KEYSER-MCCOOLE BRIDGE LOOKING
SOUTH.

115



MIHP No. AL-VI-E-222

KEYSER-MCCOLE BRIDGE

ALLEGANY COUNTY, MARYLAND AND MINERAL COUNTY, WEST VIRGINIA

PHOTOGRAPHER: GERALD M. KUNCU, SKELLY AND LOY, INC.

DATE: AUGUST 2000

NEGATIVE: MD SHPO

DESCRIPTION: EAST ELEVATION LOOKING SOUTH.

2/5



MIHP NO. AL-VI-E-222

KEYSER-MCCOOLE BRIDGE

ALLEGANY COUNTY, MARYLAND AND MINERAL COUNTY, WEST VIRGINIA

PHOTOGRAPHER: GERALD M. KUNCIO, SKELLY AND LOY, INC.

DATE: AUGUST 2000

NEGATIVE: MD SHPO

DESCRIPTION: THROUGH VIEW FROM THE SOUTH END OF THE
BRIDGE, LOOKING NORTH.

3/5



MIHP NO. 1L-VI-E-222

KEYSER-MCCOOLE BRIDGE

ALLEGANY COUNTY, MARYLAND + MINERAL COUNTY, WEST VIRGINIA

PHOTOGRAPHER: GERALD M. KUNCIO, SKELLY AND LOY, INC.

DATE: AUGUST 200

NEGATIVE: MD SHPO

DESCRIPTION: WEST VIRGINIA APPROACH SPANS LOOKING NORTH

415



MIHP NO. AL-VI-E-222

KEYSER-MCCOOLE BRIDGE

ALLEGANY COUNTY, MARYLAND AND MINERAL COUNTY, WEST VIRGINIA

PHOTOGRAPHER: GERALD M. KUNCIO, SKELLY AND LOY, INC.

DATE: AUGUST 2000

NEGATIVE: MD SHPO

DESCRIPTION: THROUGH VIEW LOOKING NORTH FROM
APPROXIMATELY MID-WAY ACROSS THE BRIDGE

5/5